

BUSINESS MATH
(BUS MATH)

Business Math is a business course designed to prepare students for roles as entrepreneurs, producers, and business leaders by developing abilities and skills that are part of any business environment. A solid understanding of math including algebra, basic geometry, statistics and probability provides the necessary foundation for students interested in careers in business and skilled trade areas. The content includes mathematical operations related to accounting, banking and finance, marketing, and management. Instructional strategies should include simulations, guest speakers, tours, Internet research, and business experiences.

- Recommended Grade Level: 10-11
- Recommended Prerequisite: Algebra I
- Credits: A two-credit course over two semesters
- Fulfills a Mathematics requirement for the General Diploma only or counts as an Elective or Directed Elective for the Core 40, Core 40 with Academic Honors and Core 40 with Technical Honors diplomas
- A Career Academic Sequence, Career-Technical program, or Flex Credit course
- Course content standards/performance expectations and Indiana Academic Standards integrated at: <http://www.doe.in.gov/octe/bme/curriculum/contentstandards.htm>
- Teacher Requirements: <http://doe.in.gov/dps/licensing/assignmentcode>
- May fulfill up to two graduation credits of the minimum Mathematics requirement for a general diploma
- Career Clusters: A recommended component for career pathways in all Indiana career clusters
- Career pathway information: <http://www.doe.in.gov/careerpathways>

Course Content Standards and Performance Expectations

BMTH 1 Math Concepts

BMTH 1.1 Content Standard: Students demonstrate the knowledge and skills necessary to determine the correct algebraic process to solve problems for a variety of business situations.

Performance Expectations

- BMTH 1.1.1** Reinforce basic math skills including percents, decimals, and fractions.
- BMTH 1.1.2** Select and use appropriate formulas to solve problems.
- BMTH 1.1.3** Construct and solve an equation for a given problem.
- BMTH 1.1.4** Determine if a solution to an algebraic computation is reasonable.

BMTH 1.2 Content Standard: Students apply basic geometry principles to solve problems for a variety of business situations.

Performance Expectations

BMTH 1.2.1 Demonstrate ability to take measurements and convert as needed.

BMTH 1.2.2 Use formulas necessary for area, perimeter, circumference, diameter, and volume.

BMTH 1.2.3 Determine if a solution to a geometry computation is reasonable.

BMTH 1.3 Content Standard: Students analyze and interpret data using common probability and statistical procedures to solve problems for a variety of business situations.

Performance Expectations

BMTH 1.3.1 Construct, read, and interpret tables, charts, and graphs.

BMTH 1.3.2 Use probability concepts to predict events.

BMTH 1.3.3 Construct and interpret frequency distribution.

BMTH 1.3.4 Calculate measures of range and central tendency (e.g., mean, median, mode).

BMTH 1.3.5 Determine if a solution to probability and statistical computation is reasonable.

BMTH 2 Accounting Principles

BMTH 2.1 Content Standard: Students apply math concepts to analyze and solve problems related to accounting principles for business.

Performance Expectations

BMTH 2.1.1 Calculate equity using the accounting equation.

BMTH 2.1.2 Calculate and plan for taxes including, sales, income, and property.

BMTH 2.1.3 Calculate cost of goods sold, gross profit, operating expenses, and net profit.

BMTH 2.1.4 Determine cost of goods sold using different inventory valuation methods (e.g., LIFO, FIFO).

BMTH 2.1.5 Calculate manufacturing costs and break-even point.

BMTH 2.1.6 Calculate and plan for a variety of expenses.

BMTH 2.1.7 Calculate company or department overhead based on various situations (e.g., sales or floor space).

BMTH 2.1.8 Calculate depreciation of assets using various methods (e.g., declining-balance method, sum-of-the-years method).

BMTH 2.1.9 Compare the costs of renting, leasing, or buying plant or current assets.

BMTH 2.2 Content Standard: Students apply math concepts to analyze and solve problems related to payroll for business.

Performance Expectations

BMTH 2.2.1 Calculate and maintain employee payroll records.

BMTH 2.2.2 Calculate employee and employer taxes and prepare related reports.

BMTH 2.2.3 Calculate fringe benefits and analyze their effect on the total wage package.

BMTH 2.2.4 Analyze costs of recruiting, placing, and training employees.

BMTH 3 Banking and Finance Services

BMTH 3.1 Content Standard: Students apply math concepts to analyze and solve problems related to banking services for business.

Performance Expectations

- BMTH 3.1.1** Maintain checking account records (e.g. checks, check register, and deposit slips).
- BMTH 3.1.2** Reconcile the bank statement.
- BMTH 3.1.3** Compare and contrast different financial institutions and their services.

BMTH 3.2 **Content Standard:** Students apply math concepts to analyze and solve problems related to the principles of business finance.

Performance Expectations

- BMTH 3.2.1** Calculate various types of interest, (e.g., simple, compound, variable, exact, or ordinary).
- BMTH 3.2.2** Calculate the costs associated with installment purchases.
- BMTH 3.2.3** Compare cash price to installment price in order to make a purchasing decision.
- BMTH 3.2.4** Compute the monthly payment, interest, and total amount required to amortize a loan (e.g. mortgage).
- BMTH 3.2.5** Compare and contrast benefits and cost of long-term debt options for promissory notes and bonds.
- BMTH 3.2.6** Compare and contrast benefits and costs of investment options (e.g. money-markets, CD's, stocks, bonds).
- BMTH 3.2.7** Understand and calculate present value and future value.
- BMTH 3.2.8** Determine the finance charges on credit card balances.
- BMTH 3.2.9** Compare and contrast the advantages and disadvantages of employee credit card use for business expenses.
- BMTH 3.2.10** Compare and contrast the advantages and disadvantages of offering credit to customers.

BMTH 4 Marketing Principles

BMTH 4.1 **Content Standard:** Students apply math concepts to analyze and solve problems related to marketing principles for business.

Performance Expectations

- BMTH 4.1.1** Compare and contrast expenses associated with various advertising mediums.
- BMTH 4.1.2** Compute extensions, subtotals, sales tax, and sales totals for a sales transaction.
- BMTH 4.1.3** Compute markup or markdown.
- BMTH 4.1.4** Calculate and analyze different types of trade discounts.
- BMTH 4.1.5** Calculate the response rate and results of surveys.
- BMTH 4.1.6** Analyze demographic information to make sound marketing decisions.
- BMTH 4.1.7** Using trend data and forecasting models, calculate future sales.
- BMTH 4.1.8** Calculate and analyze market share.
- BMTH 4.1.9** Plan and design various displays for products with different size and shape requirements.

BMTH 5 Management Principles

BMTH 5.1 **Content Standard:** Students apply math concepts to analyze and solve problems related to management principles.

Performance Expectations

- BMTH 5.1.1** Interpret financial statements to make sound managerial decisions.
- BMTH 5.1.2** Create and analyze budgets.

- BMTH 5.1.3** Calculate inventory balances and stock reorder points.
- BMTH 5.1.4** Calculate necessary ratios to make sound managerial decisions.
- BMTH 5.1.5** Calculate the cost of full-time versus part-time employees.
- BMTH 5.1.6** Compare and contrast the different types and costs relating to insurance (e.g. property, automobile, bonding).

BMTH 6 Communication

- BMTH 6.1 Content Standard:** Students develop skills to create and present accurate and effective communication for specific business related purposes and audiences.

Performance Expectations

- BMTH 6.1.1** Use clear and legible handwriting in all written work and communication.
- BMTH 6.1.2** Demonstrate active listening skills.
- BMTH 6.1.3** Use discussion skills to assume leadership and participant roles.
- BMTH 6.1.4** Use research, composition, and oral skills to present information for a variety of situations utilizing appropriate technology.
- BMTH 6.1.5** Work cooperatively with peers and authority figures.
- BMTH 6.1.6** Use clear and concise writing skills to describe, explain, and inform various audiences.
- BMTH 6.1.7** Follow and interpret directions, graphs, charts and diagrams found in technical writing.
- BMTH 6.1.8** Use appropriate industry terminology.

Indiana Academic Standards Integrated into Business Math

Mathematics

Algebra I

A1.2 Linear Equations and Inequalities

A1.2.1 Solve linear equations.

A1.2.2 Solve equations and formulas for a specified variable.

A1.1.5 Use dimensional (unit) analysis to organize conversions and computations.

A1.2.6 Solve word problems that involve linear equations, formulas, and inequalities.

A1.3 Relations and Functions

A1.3.1 Sketch a reasonable graph for a given relationship.

A1.3.2 Interpret a graph representing a given situation.

A1.9 Mathematical Reasoning and Problem Solving

A1.9.1 Use a variety of problem solving strategies, such as drawing a diagram, making a chart, guess-and-check, solving a simpler problem, writing an equation, and working backwards

A1.9.2 Decide whether a solution is reasonable in the context of the original situation.

A1.9.3 Use the properties of the real number system and the order of operations to justify the steps of simplifying functions and solving equations.

English/Language Arts

Standard 1

READING: Word Recognition, Fluency, and Vocabulary Development

10.1.1 Understand technical vocabulary in subject area reading.

10.1.2 Distinguish between what words mean literally and what they imply, and interpret what words imply.

Standard 2

READING: Reading Comprehension

10.2.1 Analyze the structure and format of various informational documents and explain how authors use the features to achieve their purposes.

10.2.3 Demonstrate use of sophisticated technology by following technical directions.

Standard 4

WRITING: Writing Process

10.4.1 Discuss ideas for writing with classmates, teachers, and other writers and develop drafts alone and collaboratively.

10.4.2 Establish a coherent thesis that conveys a clear perspective on the subject and maintain a consistent tone and focus throughout the piece of writing.

10.4.3 Use precise language, action verbs, sensory details, appropriate modifiers, and the active rather than the passive voice.

10.4.5 Develop the main ideas within the body of the composition through supporting evidence, such as scenarios, commonly held beliefs, hypotheses, and definitions.

Standard 6

WRITING: Written English Language Conventions

- 10.6.1 Identify and correctly use clauses, both main and subordinate; phrases, including gerund, infinitive, and participial; and the mechanics of punctuation such as semicolons, colons, ellipses, and hyphens.
- 10.6.2 Demonstrate an understanding of sentence construction including parallel structure, subordination, and the proper placement of modifiers and proper English usage including the consistent use of verb tenses.